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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/626,837	07/25/2003	Takeshi Iwasaki	008312-0305236	9253

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EXAMINER	
BERNATZ, KEVIN M	

ART UNIT	PAPER NUMBER
1773	

DATE MAILED: 06/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/626,837	IWASAKI ET AL.	
	Examiner	Art Unit	
	Kevin M Bernatz	1773	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1,2,6,7,11 and 14-26 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1,2,6,7,11 and 14-26 is/are rejected.

7)☒ Claim(s) 1 and 18 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Amendments to claims 1, 11 and 18, cancellation of claims 3 – 5, 8 – 10, 12 and 13, and addition of new claims 19 - 26, filed on March 14, 2005, have been entered in the above-identified application.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Objections

3. Claim 1 is objected to because of the following informalities: some of the verb tenses appear to be incorrect, specifically "having" on line 4 should be "has", "containing" on line 5 should be "contains", "having" on line 8 should be "has" and "containing" on line 9 should be "contains". Appropriate correction is required.

4. Claim 18 is objected to because of the following informalities: the "." After "recording layer" on line 6 from the bottom should be removed, as well as the "." After "crystalline alloy" on line 5 from the bottom. Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. Claims 1, 2, 6, 7, 14 – 21 and 23 – 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Honda et al. (U.S. Patent No. 5,851,643) in view of Hikosaka et al. (U.S. Patent No. 5,792,564).

Regarding claim 1, Honda et al. disclose a perpendicular magnetic recording medium (*col. 17, lines 21 - 25*) comprising a nonmagnetic substrate (*Figure 1d, element 1*), a first perpendicular magnetic recording layer formed on the nonmagnetic substrate, wherein the first perpendicular magnetic recording layer has an easy axis of magnetization in a vertical direction and contains cobalt and oxygen (*col. 23, lines 12 – 35*) and a second perpendicular magnetic recording layer formed on the first perpendicular magnetic recording layer, wherein the second perpendicular magnetic recording layer has an easy axis of magnetization in the vertical direction (*Figure 1d, elements 3 and 4*), and mainly contains a crystalline alloy (*col. 18, lines 38 – 61 and Figure 7b*), and the crystalline alloy contains cobalt, chromium, platinum, and at least one rare earth element selected from applicants' Markush listing (*col. 17, lines 45 – 53 and col. 23, lines 12 - 35*), and one of a lubricating layer and a protective layer (*col. 15, lines 8 – 9*).

Honda et al. fail to explicitly disclose an embodiment comprising the claimed alloys for the first and second vertical magnetic layers.

However, the Examiner notes that Honda et al. teach an embodiment comprising a Co-O first magnetic layer deposited under a CoCr crystalline non-oxide magnetic layer (*col. 23, lines 12 – 35*). Honda et al. further teach the equivalents of CoCr alloy magnetic layers to Co based magnetic layers further comprising Cr, Pt and at least one rare earth element (*col. 16, lines 55 – 61; col. 17, lines 45 – 53; and col. 22, lines 44 – 48*). As such, the Examiner deems that Honda et al. provides sufficient specificity that it would have been obvious to one of ordinary skill in the art to utilize a CoCrPt alloy

including at least one rare earth element from applicants' claimed Markush listing as a suitable equivalent Co-based magnetic crystalline alloy above the Co-O first magnetic layer.

Furthermore, the Examiner notes that Hikosaka et al. provides an explicit teaching that utilizing Co oxide containing magnetic layers which further include at least one of platinum and chromium are superior to the Co-CoO magnetic layers disclosed by Honda et al. since the Co oxide based magnetic layers taught by Hikosaka et al. have improved perpendicular magnetic properties (*col. 1, lines 36 – 47; col. 2, lines 10 – 41; and col. 6, line 40 bridging col. 7, line 64*).

It would, therefore, have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the device of Honda et al. to utilize a magnetic layer meeting applicants' claimed limitations as taught by both Honda et al. and Hikosaka et al. since substitution of equivalents requires no express motivation as long as the prior art recognizes the equivalency and Hikosaka et al. provides explicit motivation for the use of the claimed oxide-based magnetic layer.

Regarding independent claim 18, Honda et al. disclose the nominal apparatus limitations meeting applicants' claimed limitations (*Figures 16a and 16b and col. 24, lines 44 - 58*). Furthermore, the Examiner deems that one of ordinary skill in the art would readily recognize that the claimed apparatus elements are nominal apparatus elements since all magnetic recording and reproducing apparatus must necessarily possess "a mechanism which supports and rotates the perpendicular magnetic recording medium", a "magnetic head having an element to record information on the

perpendicular magnetic recording medium", "an element to reproduce recorded information", and "a carriage assembly which supports the magnetic head to be movable with respect to the perpendicular recording medium".

Regarding claims 2, 17, 19 and 26, Honda et al. disclose additional layers meeting applicants' claimed structural limitations (*Figures, elements 2, 6, 22 and 49; col. 23, lines 53 – 56; and col. 24, lines 31 - 32*).

Regarding claims 6, 7, 20 and 21, Honda et al. disclose magnetic layer thickness values meeting applicants' claimed limitations (*col. 15, lines 31 – 37; col. 22, lines 4 – 21; and examples*).

Regarding claims 14 and 23, Honda et al. disclose alloys meeting applicants' claimed compositions (*col. 17, lines 45 – 53; col. 22, lines 44 – 49; and col. 26, lines 50 – 57*).

Regarding claims 15, 16, 24 and 25, Honda et al. disclose multilayered perpendicular recording media meeting applicants' claimed structural limitations (*Figures 1a, 10, 11 and col. 22, lines 2 – 21*).

6. Claims 11 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Honda et al. in view of Hikosaka et al. as applied above, and further in view of Nippon Digital (JP 02-103715 A). See provided Derwent Abstract Translation of JP '715 A.

Honda et al. and Hikosaka et al. are relied upon as described above.

Regarding claims 11 – 13, neither Honda et al. nor Hikosaka et al. disclose a CoCr magnetic alloy comprising a percentage of RE meeting applicants' claimed composition limitations.

However, JP '715 A teach that using a CoCr alloy comprising an amount of rare earth elements meeting applicants' claimed composition limitations results in a perpendicular recording layer possessing fine and regular cross section structure which allows achievement of high recording densities (*Derwent Abstract*).

It would therefore have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the device of Honda et al. to use a CoCr alloy comprising a composition meeting applicants' claimed limitations as taught by JP '715 A inorder to form a perpendicular recording layer possessing fine and regular cross section structure which allows achievement of high recording densities.

7. Claims 1, 2, 6, 7, 11 and 14 – 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Honda et al. in view of Hikosaka et al. as applied above, and further in view of Sakawaki et al. (U.S. Patent App. No. 2003/0082407 A1) – and –

8. Claims 1, 2, 6, 7, 11 and 14 – 26 are rejected under are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakawaki et al. (JP 2003-67910 A). See U.S. Patent App. No. '407 A1, which is the U.S. equivalent of JP '910 A.

The Examiner notes that the above references are commonly assigned and share a common inventor with the pending application. Given that U.S. '407 A1 presently qualifies as prior art under both 102(a) and 102(e), the above rejection cannot

be overcome simply by a statement of common ownership at the time the invention was made. However, the Examiner notes that perfection of applicants' claim to priority via the filing of a certified English translation of the Japanese language priority document would (1) remove JP '910 A as prior art and allow applicants to overcome the rejection predicated on U.S. '407 A1 via a statement on the record of common ownership at the time the invention was made. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Honda et al. and Hikosaka et al. are relied upon as described above.

While it is the Examiner's position that Honda et al. provides sufficient specificity that one of ordinary skill in the art would recognize that the claimed CoCrPt + rare earth elements are functional equivalents to the CoCr alloy used in embodiment 7 of Honda et al., the Examiner notes that Honda et al. fail to explicitly disclose such an alloy used with a Co oxide magnetic layer.

However, Sakawaki et al. teach that in multilayered perpendicular magnetic layers, it would have been obvious to utilize a second perpendicular magnetic layer meeting applicants' composition since such a medium structure can obtain excellent magnetic characteristics with reduced cost (i.e. less Pt) and reduced noise (*Paragraphs 0040 and 0095*).

It would therefore have been obvious to one of ordinary skill in the art at the time of the applicant(s) invention to modify the device of Honda et al. in view of Hikosaka et al. to utilize a second perpendicular magnetic layer meeting applicants' claimed composition limitations as taught by Sakawaki et al., since such a medium structure can

obtain excellent magnetic characteristics with reduced cost (i.e. less Pt) and reduced noise.

Regarding claims 11 and 22, Sakawaki et al. disclose rare earth concentrations meeting applicants' claimed limitations. The Examiner notes that Honda et al. provides sufficient specificity that any rare earth element can be added to the cobalt based magnetic layers with the same expectation of success (*col. 17, lines 45 – 53; col. 22, lines 44 – 49; and col. 26, lines 50 – 57*).

Response to Arguments

9. The prior Double Patenting rejection of claims 1 – 5, 8, 10 – 14, 17 and 18 in view of App. '952 (Sakawaki et al.)

The above noted rejection has been withdrawn because applicant(s) amendment(s) have set forth new limitations (e.g. incorporation of subject matter of claim 9 into the independent claims) no longer anticipated, nor rendered obvious, by the above noted rejection.

10. The prior rejection of claims 1 – 14, 17 and 18 under 35 U.S.C § 102(a) and/or 102(e) – Sakawaki et al., either reference

The above noted rejection has been withdrawn because applicant(s) amendment(s) have set forth new limitations (e.g. the simultaneous use of the specific alloys for the first and second perpendicular magnetic layers) no longer anticipated, nor

rendered obvious, by the above noted rejection, since Sakawaki et al. does not teach such a structure with sufficient specificity.

11. The prior rejection of claims 1 - 18 under 35 U.S.C § 102(b) and/or 103(a) – Honda et al., alone or in view of JP '715 A

The above noted rejection has been withdrawn because applicant(s) amendment(s) have set forth new limitations (e.g. the simultaneous use of the specific alloys for the first and second perpendicular magnetic layers) no longer anticipated, nor rendered obvious, by the above noted rejection.

12. The rejection of claims 1, 2, 6, 7, 11 and 14 - 26 under 35 U.S.C § 103(a) – Honda et al. in view of Hikosaka et al., alone or in view of various references

Applicant(s) arguments have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Applicants' amendment resulted in embodiments not previously considered (i.e. the simultaneous use of the specific alloys for the first and second perpendicular magnetic layers) which necessitated the new grounds of rejection, and hence the finality of this action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M Bernatz whose telephone number is (571) 272-1505. The examiner can normally be reached on M-F, 9:00 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KMB
May 28, 2005

Kevin M. Bernatz, PhD
Primary Examiner